Joint Meeting of the Department of Energy (DOE)
Atmospheric Radiation Measurement Program Climate Research Facility (ACRF)
Cloud Modeling and Aerosol Working Groups and Atmospheric Science Program (CMWG/AWG/ASP)

Millennium Harvest House Hotel
Boulder, Colorado
29 September - 2 October 2009

AGENDA
(blue=CMWG plenary, green=joint plenary, red=AWG plenary, yellow=parallel ISDAC discussion)

Tuesday, September 29

7:00 - 8:00 **Registration**

8:00 - 10:15 **CMWG plenary—Welcome to new CMWG PIs (Century Room)**

Ann Fridlind *Introductions and overview*

Brian Mapes *Parameterizing organized convection + Global cloudiness peak near -15C: what's going on?*

Wei-Kuo Tao *The impact of large-scale forcing and vertical resolution on cloud and precipitation processes*

Ping Zhu *High resolution simulation and comparison of shallow cumulus clouds observed during the TWP-ICE, Azores, and RICO experiments*

Invited speakers

Larry Berg *Representation of shallow cumuli in regional scale models*

Hugh Morrison *Impact of parameterized microphysics on the simulation of organized deep convection*

Dave Randall *The evolution of complexity in GCMs*

10:15 - 10:45 **Coffee break**

10:45 - 12:15 **CMWG plenary (Century Room)**

Fei Chen *Roles of land-atmospheric coupling strength in the modeled diurnal cycle*

Zhiming Kuang *Nature versus nurture in shallow convection*

Yunyan Zhang *Mechanisms affecting the transition from shallow to deep convection over land: Inferences from observations collected at the ARM Southern Great Plains site*

Xiaoqing Wu *Statistical analysis of CRM-simulated year-long cloud properties and validation against ARM SGP observations*

Mark Miller *On the performance of the IPCC and NCAR climate models in West Africa*

Catherine Rio *The 10th of July 2006 over Niamey: A golden case of daytime moist convection in a semi-arid environment*

12:15 - 1:30 **Lunch break**

1:30 - 3:15	**<u>CMWG plenary—Tropical Warm Pool–International Cloud Experiment (TWP-ICE) / GEWEX Cloud System Study (GCSS) Program Case Study (Century Room)</u>** **Jon Petch** *GCSS Precipitating Cloud Systems Working Group Report* **Minghua Zhang** *Analyzing the large-scale atmospheric momentum budget for TWP-ICE* **Shaocheng Xie** *Observed large-scale structures and diabatic heating and drying profiles during TWP-ICE* **Adam Varble** *Using radar data to evaluate CRM simulations of TWP-ICE monsoonal convection* **Adrian Hill** *Cloud resolving model (CRM) forcing ensemble of ARM/GCSS/SPARC TWP-ICE case - results from the UK Met Office LEM* **Guang Zhang** *Microphysics in convection parameterization: comparison with TWP-ICE data* **Hugh Morrison** *Simulation of TWP-ICE deep convection using a new bulk microphysics scheme*
3:15 - 3:45	**Coffee break**
3:45 - 5:30	**<u>CMWG plenary (Century Room)</u>** **Steve Krueger** *Vertical velocity statistics in cloud-resolving simulations of deep convection* **Erin Wagner** *Identifying boundary layer turbulence structure using water vapor mixing ratios retrieved from the SGP raman lidar* **Segele Zewdu** *Effects of assimilating surface and upper air sounding data in WRF microphysics simulations of warm-season convection in the vicinity of the SGP Central Facility* **Esther White** *A modeling study of freezing precipitation events in the Southern Great Plains region* **Jiwen Fan** *Dominant effect of CCN over IN on tropical anvil characteristics and water vapor of the tropical tropopause layer* **Jun-Ichi Yano** *Revisit of Riehl and Malkus (1958): observational and model diagnoses, prognostic modellings* **Zachary Eitzen** *Variations in ERA Interim and CERES-Terra fluxes and cloud properties with SST anomalies for low cloud regions* **<u>TWP-ICE/GCSS (Flatiron Room)</u>** **Ann Fridlind** *TWP-ICE CRM intercomparison: First results from eight models* **Laura Davies** *Initial results for ensemble SCM intercomparison of TWP-ICE* **Yanluan Lin** *TWP-ICE NWP intercomparison: Status and update* **Ping Zhu** *A limited area mode (LAM) intercomparison study of the TWP-ICE case*

Wednesday, September 30

7:00 – 8:00 **Registration**

8:00 – 10:00 **AWG plenary (Millennium Room)**

Working Group Welcome

Aerosol Instrumentation and Measurements Overview
Anne Jefferson *Aerosol Observing System*
Stephen Springston *ASP archive and new instrumentation*
Don Collins *TDMA/CCN*
Manvendra Dubey *Photoacoustic spectrometer*
Gary Hodges *MFRSR aerosol optical depth*
Rob Newsome *Raman lidar, HSRL, Doppler lidar*
Connor Flynn *Aerosol Best Estimate*

Discussion
Data product development and VAPs

8:00 - 10:00 **CMWG plenary—Data products and discussion (Century Room)**
Ric Cederwall *Surface Heat Flux Study Group report*
Steve Klein *Vertical Velocity Focus Group report*
Doug Spangenberg *Update on NASA-Langley satellite cloud and radiation products for the ARM community*
Shaocheng Xie *Climate Modeling Best Estimate VAP report*
Aaron Kennedy *Relationships of observed cloud fractions to ARM continuous forcing and NARR at the ARM SGP*

General discussion on any issue of importance to the CMWG (open microphone)

10:00 - 10:30 **Coffee break**

10:30 - 12:15 **Joint Plenary (Century Room)**

An Introduction to the Atmospheric System Research (ASR) program and panel discussion
Wanda Ferrell *ACRF Program Manager*
Kiran Alapaty *ARM Program Manager*
Ashley Williamson *ASP Program Manager*

	Joint Plenary Aerosol and Cloud Modeling **Steve Schwartz** *Aerosol forcings: why it is essential that they be determined, and some ideas on how* **Yangang Liu** *Continuous evaluation of fast processes in Climate Models Using ARM Measurements* **Zhanqing Li** *A direct and strong evidence of aerosol invigoration effect from the ARM long-term observation* **Cathy Chuang** *Impacts of autoconversion scheme on simulated cloud properties and aerosol indirect effects*
12:15 - 1:30	**Lunch break**
1:30 - 3:30	**Invited speakers—Modeling aerosol-cloud interactions (Century Room)** **Surabi Menon** *GISS Model E* **Steve Ghan** *Community Climate System Model* **Jon Petch** *Clouds in the Met Office models* **Tom Ackerman** *An Analysis of Cloud Cover in the Multiscale Modeling Framework Global Climate Model using 4 and 1 km horizontal grids* **Paul Field** *Microphysics and aerosols in cloud scale models* **Graham Feingold** *Where, Why, and How on Earth does Aerosol affect Clouds and Precipitation?*
3:30 - 3:50	**Coffee break & Poster set up time**
3:50 – 5:30	**ARM aerosol and cloud data priorities panel discussion (Century Room)** ***Presentation of new ACRF Instrumentation; Discussion of priorities for data product development*** **Jim Mather** *ACRF Technical Director* **Randy Peppler** *ACRF Data Quality Office* **Matt Shupe** *Cloud Properties Working Group Chair*
5:30 – 6:00	**Break & Poster set up time**
6:00	**POSTER SESSION & Dinner (Outdoor Pavilion)** ***Buffet dinner starting at 6:00 with posters available for discussion thereafter***

Thursday, October 1

7:30 – 8:30	**Registration**

8:30 - 10:15	**Joint plenary—Indirect and Semi-Direct Aerosol Campaign (ISDAC) (Century Room)** **Greg McFarquhar** *Understanding cloud measurements from ISDAC* **Paul Lawson** *Cloud microphysical observations during ISDAC* **Sara Lance** *Cloud microphysical data from the NOAA aircraft* **David Mitchell** *Comparing ISDAC and M-PACE particle size distribution measurements* **Alla Zelenyuk** *Characterizing the size and composition of cloud condensation nuclei (CCN) and ice cloud nuclei (IN) over the North Pole of Alaska* **Sara Brooks** *Heterogeneity of ice nuclei in the Arctic* **M. Dubey** *Airborne photoacoustic observations of aerosol optical properties aloft Alaska connected to chemical composition measurements during ISDAC*
10:15 - 10:45	**Coffee break**
10:45 - 12:15	**Joint plenary—ISDAC (Century Room)** **Peter Liu** *Droplet closure studies using ISDAC data* **Mikhail Ovtchinnikov** *On modeling ice-liquid partitioning in mixed phase Arctic stratus: effects of cloud dynamics and microphysics representation* **Jiwen Fan** *ISDAC case studies—model simulations and observation* **Amy Solomon** *The radiative and dynamical impact of aerosols on mixed-phase clouds observed during ISDAC and M-PACE* **Alex Avramov** I*ce formation closure during ISDAC: Flight 31 as a first modeling case study* **Ismail Gultepe** *Surface Observations During ISDAC: Light Precipitation and Ice fog Occurrence*
12:15 - 1:30	**Lunch break**
1:30 - 3:15	**Joint plenary—ISDAC (Century Room)** **Xiaohong Liu** *Effects of mixed-phase cloud ice nucleation parameterizations on clouds, radiation and climate* **N. Shantz** *Aerosol effects on ice, liquid, and mixed phase clouds during ISDAC flights* **Ismael Gultepe** *Microphysical parameterizations based on ISDAC aircraft observations and aerosol-cloud effects on radiative fluxes* **Rich Ferrare** *High Spectral Resolution Lidar (HSRL) aerosol/cloud measurements during the ARCTAS/ISDAC campaigns* **Hugh Morrison** *Preliminary results from the WMO/GCSS SHEBA model intercomparison* **Bastiaan van Diedenhoven** *Simulating lidar depolarization by aerosols and clouds: Lessons from the SHEBA campaign*
3:15 - 3:45	**Coffee break**
3:45 – 5:30	**AWG plenary (Millennium Room)** **Allison McComiskey** *ASR Science Plan Overview* **Jerome Fast** *Applying the Aerosol Modeling Testbed to Assess the Performance of Simulated Particulate Properties and Radiative Forcing from Different Process Modules*

Discussion:
Science Questions

- what questions does the aerosol group what to answer in the next 5-10 years?
    - lifecycle
    - radiative forcing
    - aerosol-cloud interactions
- what steps do the aerosol group want to take to integrate observations and analysis with modeling?
- is there a call for specific focus groups?

Friday, October 2

8:00-10:00	**AWG plenary (Century Room)**
	Campaigns – Past, Current, and Planned **John Ogren** *RACORO* **Rich Ferrare** *RACORO HSRL* **Gannet Hallar** *StormVeX* **Rahul Zaveri** *CARES* **Jim Smith** *Nucleation and CCN 2009, Atlanta*
	Discussion *IOP/Campaign science* *future campaign proposals*
10:00-10:15	**Coffee break**
10:15-12:30	**AWG plenary (Century Room)**
	Anne Jefferson *Empirical CCN prediction* **Brad Flowers** *Long-range transport of aerosols at Cheju with 3-laser PAS* **Jian Wang** *Aerosol effect on cloud microphysics at VOCALS* **Tony Prenni** *Ice nuclei and large aerosol particles* **Seoung Soo Lee** *Thunderstorms and stratocumulus: How does their contrasting morphology affect their interactions with aerosols?*
12:30	**Adjourn**